

Australian College of Veterinary Scientists
Membership Examination

June 2011

Animal Nutrition (Ruminant)
Paper 1

Perusal time: **Fifteen (15)** minutes

Time allowed: **Two (2)** hours after perusal

Answer your choice of any **FOUR (4)** questions from the six questions **ONLY**

In some questions you must choose which subparts to answer

All six main questions are of equal value

Answer **FOUR** questions each worth 25 markstotal 100 marks

Paper 1: Animal Nutrition (Ruminant)

Answer your choice of any **FOUR (4)** questions from the six questions **ONLY**.

1. Discuss the pathogenesis, including metabolic changes that are associated with pregnancy toxaemia in **EITHER** sheep **OR** cattle. (25 marks)

2. Discuss the clinical signs, pathology, pathogenesis and impacts on metabolism of **three (3)** of the following dietary challenges as these relate to ruminants:
(8½ marks each)
 - a) concentrations of zinc in the diet that exceed 2000 ppm
 - b) ingestion of perennial ryegrass that has high ergovaline concentrations
 - c) ingestion of *Lantana camera*
 - d) extremely low levels of dietary cobalt.

3. Micronutrients play a role in many metabolic pathways. Discuss the role of micronutrient vitamins and minerals in the diet in regard to their role in immune function and non-specific immunity, with particular reference to the well-recognised peri-parturient relaxation of immunity in ruminants. (25 marks)

4. For **five (5)** of the six feeds listed in the table on the separate sheet attached; provide an estimate of the typical expected average dry matter (DM), metabolisable energy (MJME), fibre (neutral detergent fibre, NDF; acid detergent fibre, ADF), starch, water soluble carbohydrates (WSC), fat, and crude protein (CP) concentration. For each feed also define a lower and upper value for each of the nutrients. **In your answer book, explain reasons for variations in quality for each of the five feeds and list any potential animal health risks associated with each feed.**

Ensure you hand the separate sheet to the invigilator with your answer booklets at the end of the examination. (25 marks)

Examination continued on next page

5. Discuss the factors that influence the terminal pH of ensiled forage. (25 marks)

6. Consumption of water is an important determinant of dry matter intake by ruminants. Discuss factors that influence the intake of water by a ruminant species of your choice. Explain why consumption of dry matter is associated with intake of water. (25 marks)

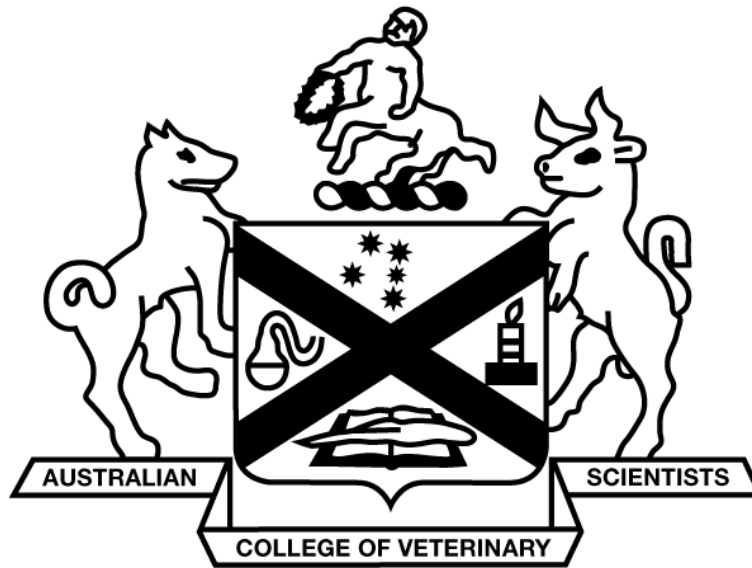
End of paper

Answer Sheet for Paper 1 Question 4

Candidate: _____

Ensure you hand this separate sheet to the invigilator with your answer booklets at the end of the examination.

		DM %	MJME/ kgDM	NDF %DM	ADF %DM	Starch %DM	WSC %DM	Fat %DM	CP %DM
Maize (corn) grain	Typical expected average								
	Lower and upper values								
Citrus pulp	Typical expected average								
	Lower and upper values								
Canola meal	Typical expected average								
	Lower and upper values								
Greenfeed sorghum approx. 80 cm tall	Typical expected average								
	Lower and upper values								
Lucerne silage	Typical expected average								
	Lower and upper values								
Condensed Distillers Solubles (CDS) or Distillers Condensed Solubles (DCS)	Typical expected average								
	Lower and upper values								



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Paper 2

Perusal time: **Fifteen (15)** minutes

Time allowed: **Two (2)** hours after perusal

Answer your choice of any **FOUR (4)** questions from the six questions **ONLY**

All six main questions are of equal value

In one question you must choose which subpart to answer

Answer **FOUR** questions each worth 25 markstotal 100 marks

Paper 2: Animal Nutrition (Ruminant)

Answer your choice of any **FOUR (4)** questions from the six questions **ONLY**.

1. 'Grazing management can affect both per head and per hectare productivity of a beef finishing system'. Discuss this statement with respect to a tropical or temperate grazed forage system of your choice. (25 marks)

2. Answer **one (1)** subpart of this question **only**: (25 marks)
 - a) Compare and contrast the benefits and limitations of colostrum, whole milk and calf (**or** lamb) milk replacer as a feed for a calf **or** lamb rearing system of your choice.

OR

 - b) Discuss how you would diagnose, treat and prevent nutritional scours in young milk-fed calves or lambs.

3. A feedlot client complains that his rising two-year-old Angus beef cattle are not actively consuming the total mixed ration offered to them. Discuss your approach to the examination, diagnosis and prevention of this problem. (25 marks)

4. You are presented with a group of newly-weaned calves that are below target weight and height. Discuss your approach to investigation, diagnosis and remediation of this problem. (25 marks)

5. You are called to investigate a problem of 'sudden deaths' of several in-calf dairy cows grazing leafy, vegetative greenfeed oats. List the possible causes of death in these cattle, and discuss your approach to the diagnosis and prevention of each condition. (25 marks)

6. A sheep producer complains of reduced fleece yield from her mixed-age ewes. List factors that influence wool yield. Discuss how you would investigate possible causes of this problem and describe the management strategies that you would recommend to improve the yield of fleeces from these sheep. (25 marks)

End of paper